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Abstract (220 words):
NOTE : DRAFT ABSTRACT !

Four measurement campaigns in selected Danish coastal waters have been conducted from 1997-1999. These have all involved CASI airborne spectrometer data acquisition in connection with an intensive collection of in-situ data (sea truth). Irradiance reflectance of the water has been measured in addition to a number of optical properties of the water and concentration of constituents needed to carry out spectral reflectance-modeling via information on spectral backscattering and spectral absorption. Backscattering has been measured in-situ for two wavelengths, while absorption has been determined in-vitro from water samples. Absorption from yellow substances, pigmented particles and non-pigmented particles has been determined.

The optical properties have been used in a semi-analytical approach to derive a matrix inversion algorithm/tool, which can derive primarily concentrations of chl-a and dry weight (total suspended matter). The algorithm was developed using 75 channel information (400 - 750 nm) from the in-situ spectral reflectance measurements. The tool can simulate any spectral configuration, and has been tested on several sets of 15 band CASI imagery acquired during the campaigns in the primary study areas (North Sea, Horsens Fjord and Århus Bay). The results show that chl-a and total suspended matter can be derived by inversion but the method is very sensitive to the selection of wavelength range and number of bands within the matrix inversion.